

CLAIMS

What is claimed is:

1 Claim 1: A method of providing learning objects, comprising:

2 accessing an authoring application for creating a shareable content object (SCO),
3 the accessing being through at least one of a web based remote access and a download of the
4 authoring application;

5 composing a shareable content object (SCO) representing one or more assets
6 using the authoring application;

7 assigning a digital rights to the SCO to secure the one or more assets; and
8 individually controlling access to the SCO and the one or more assets by utilizing
9 the assigned digital rights to the SCO or the one or more assets.

1 Claim 2: The method of claim 1, wherein the accessing an authoring application step
2 includes:

3 accessing an on-line portal server to obtain registration information; and
4 registering as an author of learning objects.

1 Claim 3: The method of claim 2, wherein the registering step includes receiving a registration
2 confirmation that includes at least one of a user-id, a password, a login uniform resource
3 locator (URL) and a universal resource identifier (URI).

1 Claim 4: The method of claim 2, wherein the download of the authoring application includes:
2 checking the client browser's version and downloading the DRM extension
3 appropriate for the browser's version;
4 accessing an application to create SCO rights metadata and promotional material;
5 and
6 generating a public key pair for the client for encryption purposes and sending a
7 private key to the client,
8 wherein the accessing the application to create SCO rights metadata occurs
9 through one of a web based remote access and a download the application.

1 Claim 5: The method of claim 1, wherein the assigning step includes:
2 logging on to a digital packager;
3 uploading a package containing the SCO and a metadata file; and
4 triggering a digital rights management (DRM) packager to assign digital rights to
5 at least one of the SCO and the one or more assets and the package.

1 Claim 6: A method of claim 5, wherein the triggering step includes assigning a price level to
2 one of the SCO and the one or more assets controlled by the assigned digital rights.

1 Claim 7: The method of claim 5, further comprising the steps of:
2 parsing the package to extract structure and titles; and

3 assigning a package ID with a package name to the SCO.

1 Claim 8: The method of claim 1, further comprising:

2 generating promotional material and thumbnail for use in an electronic store
3 (eStore) to provide searching and discovery capability; and
4 storing the promotional material and the SCO in an on-line catalog.

1 Claim 9: The method of claim 1, further comprising assigning digital rights to the one or
2 more assets and encrypting at least one of the SCO and one or more assets.

1 Claim 10: The method of claim 1, wherein the assigning digital rights step assigns rights to
2 the one or more assets to independently access the one or more assets under control of the
3 assigned digital rights.

1 Claim 11: The method of claim 5, further comprising the step of placing the SCO, the
2 metadata file and a promotional file into a digital container.

1 Claim 12: The method of claim 11, wherein the placing step includes at least one of
2 assigning digital rights to the SCO and encrypting the one or more assets using randomly
3 generated symmetric keys of the associated SCO.

1 Claim 13: The method of claim 12, wherein the digital rights include at least one of price,
2 user identity, and length of use.

1 Claim 14: The method of claim 12, further including placing the randomly generated
2 symmetric keys in the metadata file, and encrypting the metadata file with a public key.

1 Claim 15: The method of claim 1, wherein in the composing step the one or more assets
2 include at least one of a video asset, a text asset, a music asset, and a learning asset.

1 Claim 16: A method of claim 1, further comprising packaging a content aggregation file
2 separately from the SCO and any asset files, wherein the content aggregation file includes for
3 the SCO: an associated metadata file, a manifest file, a content packaging information, and
4 encrypted rights.

1 Claim 17: A method for creating learning objects, comprising:
2 creating a package containing one or more shareable content objects (SCOs);
3 assigning digital rights management (DRM) to the one or more SCOs;
4 updating an on-line electronic store (e-Store) with the one or more SCOs; and
5 making the one or more SCOs available for searching and downloading at a
6 client,
7 wherein access to the one or more SCOs is controlled by the DRM, and the one or
8 more SCOs include one or more assets individually controllable.

1 Claim 18: The method of claim 17, wherein in the creating a package step the package
2 contains a content aggregation file containing at least one of a metadata, a manifest, content
3 packaging information, and a encrypted rights for each SCO in the package.

1 Claim 19: The method of claim 17, further comprising the step of invoking a DRM packager
2 to upload the package in compressed format and place in a digital container.

1 Claim 20: The method of claim 17, further comprising the step of storing the package in a
2 learning objects repository for later retrieval by an on-line learning management system
3 when the one or more SCOs is at least one of searched and accessed.

1 Claim 21: The method of claim 17, wherein:
2 the assigning DRM to the one or more SCOs include assigning a price to each of
3 the one or more SCOs and at least one of the one or more assets, and the assigning the DRM
4 step causes limitation of access to the one or more SCOs by user identity, price, or type of
5 asset.

1 Claim 22: The method of claim 17, further comprising logging onto a portal server to
2 perform any of the steps, wherein the portal server provides a common interface personalized
3 to a user's profile and role.

1 Claim 23: The method of claim 17, further comprising:

2 logging onto an electronic store (e-store) to access the one or more SCOs; and
3 generating promotional material and supplying parameters indicating at least one of:

4 a package ID,

5 whether each of the SCOs is encrypted,

6 whether the one or more SCOs are to be delivered via on-line or off-line mode,

7 whether the package is a course or SCO,

8 a license server address,

9 content manager address,

10 and whether the promotional contents are packaged into a secure container.

1 Claim 24: The method of claim 17, further comprising assigning symmetric keys to each one
2 or more SCOs and encrypting each one or more SCOs with the symmetric keys.

1 Claim 25: The method of claim 17, further comprising:

2 extracting information including thumbnail promotional material from a content
3 aggregation(CA) file;

4 ingesting the one or more SCOs and CA file into a catalog using the
5 information; and

6 storing the thumbnail promotional material into the catalog and associating the
7 promotional material with the one or more SCOs,

8 wherein the thumbnail promotional material and one or more SCOs are

9 searchable.

1 Claim 26: The method of claim 17, wherein the one or more assets are at least one of a video
2 asset, a text asset, a music asset, and a learning asset.

1 Claim 27: A system for providing learning objects, comprising:
2 a portal server to permit authoring of at least one shareable content object (SCO)
3 having one or more assets;
4 a digital rights management (DRM) content packager accessible via the portal
5 server which assigns digital rights to the at least one shareable content object (SCO);
6 a DRM license server which assigns license criteria to the at least one SCO and
7 the one or more assets; and
8 a content manager which stores or retrieves the at least one SCO and the one or
9 more assets.

1 Claim 28: The system of claim 27, wherein the portal server provides a common interface
2 personalized to a user's profile and role, and the portal server facilitates at least one of:
3 accessing a web base authoring application for creating the at least one SCO, and
4 downloading of an client authoring application for creating the at least one SCO.

1 Claim 29: The system of claim 27, wherein the DRM content packager communicates with
2 the portal server for uploading the at least one SCO and communicates with a content

3 manager loader for storing the at least one SCO in a learning objects repository and wherein
4 the DRM content packager uploads a package and parses the package to extract structure and
5 titles of the package, the package containing the at least one SCO and promotional material.

1 Claim 30: The system of claim 27, wherein the one or more assets is at least one of a video
2 asset, a text asset, a music asset, and a learning asset.

1 Claim 31: The system of claim 27, wherein the at least one SCO is packaged into a digital
2 container, and wherein the each of the at least one SCO and each of the one or more assets is
3 associated with a price controlled by DRM.

1 Claim 32: A digital rights protection system, comprising:
2 a secure uploading service capable of receiving unprotected digital content having
3 one or more parts, associated metadata, and one or more promotional materials;
4 an automatic validation component adapted to ensure conformance of the
5 unprotected digital content to Shareable Content Object Reference Model (SCORM)
6 standards and providing error messages to enable correction; and
7 a digital rights generation layer having one or more components adapted to
8 provide a web-based interface for specifying different rights to the one or more parts for
9 providing protected digital content.

1 Claim 33: The digital rights protection system of claim 32, further comprising a means for
2 generating digital rights files and associating the digital rights files with the digital content by
3 embedding links into a metadata right field within corresponding metadata files.

1 Claim 34: The digital rights protection system of claim 33, further comprising a transparent
2 web service for automatically encrypting the protected digital content and the rights files,
3 wherein the digital rights generation layer provides content protection services.

1 Claim 35: The digital rights protection system of claim 32, further comprising:
2 a security manager component adapted to provide secure communications with
3 client stations and an electronic store; and
4 a content repository component which prevents any input/output operation that
5 creates a rights violation when the protected digital content is stored.

1 Claim 36: The digital rights protection system of claim 32, further comprising a means for
2 providing catalog creation services that includes invoking web services with a trusted
3 electronic store to create a catalog entry of the protected digital content and any associated
4 promotional material.

1 Claim 37: The digital rights protection system of claim 32, wherein all components of the
2 rights generation layer has a public-key certificate by a certificate authority indicating that all
3 the components are trusted.

1 Claim 38: The digital rights protection system of claim 32, wherein the digital rights
2 generation layer provides updating and version control capabilities of the protected digital
3 content and any associated metadata files.

1 Claim 39: A computer program product comprising a computer usable medium having
2 readable program code embodied in the medium, the computer program product includes:
3 a first computer to compose a shareable content object (SCO) representing one or
4 more assets;
5 a second computer code to assign a digital rights to the SCO to secure the one or
6 more assets; and
7 a third computer code to individually access the SCO and the one or more assets,
8 wherein the access to the SCO and the one or more assets is individually controlled by the
9 assigned digital rights.